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(54) One-piece razor handle

(57) A one-piece razor handle 12 moulded from resilient plastic has spaced-apart opposing side walls 36 joined at an intermediate location by a neck 46. The walls diverge upwardly from the neck into upper portions 50 for gripping a blade cartridge, and extend downwardly to a spacer 44 that extends between the lower portions of the wall. The lower portions of the walls, between the neck and spacer, are resiliently squeezable. The neck acts as a fulcrum so that the upper portions pivot outwardly as the lower portions are squeezed inwardly. A base 42 joins the bottoms of the walls extending past the spacer.

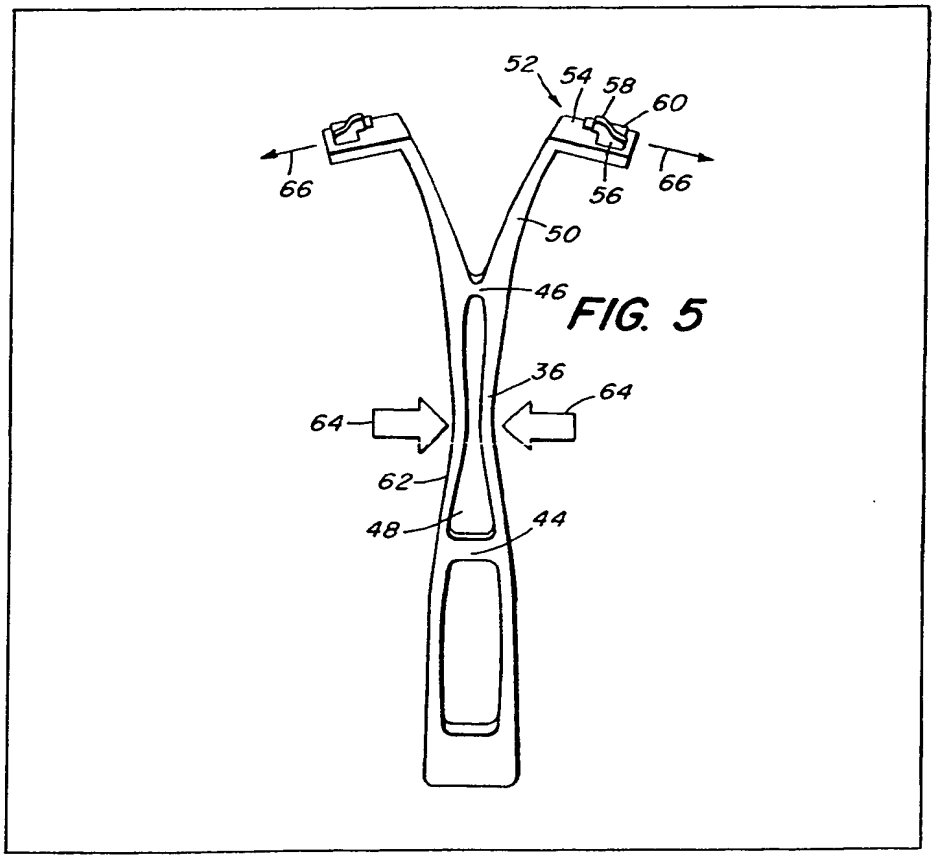

FIG. 5

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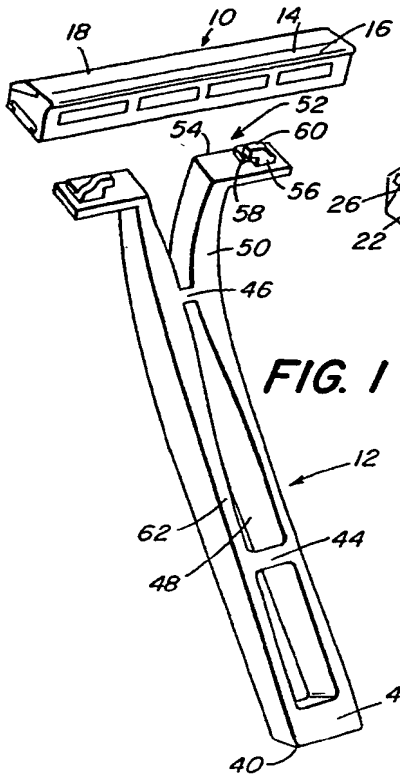

FIG. 1

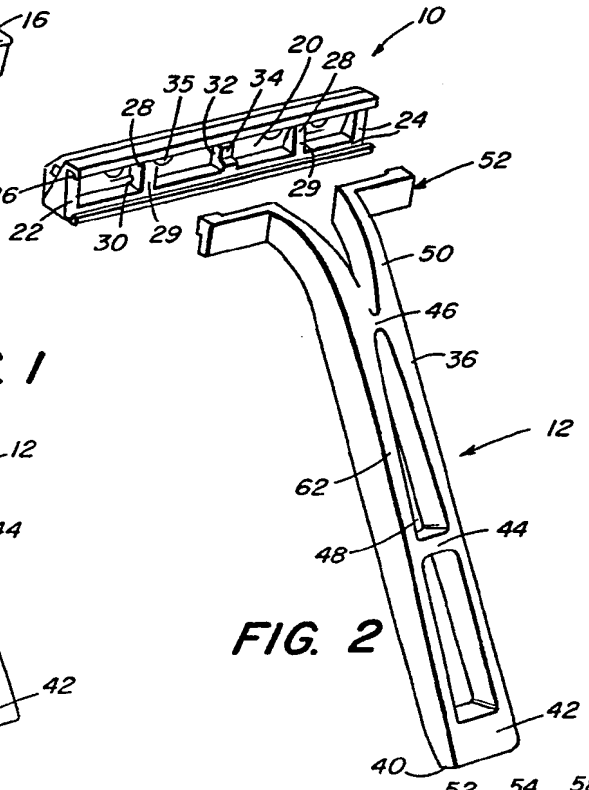

FIG. 2

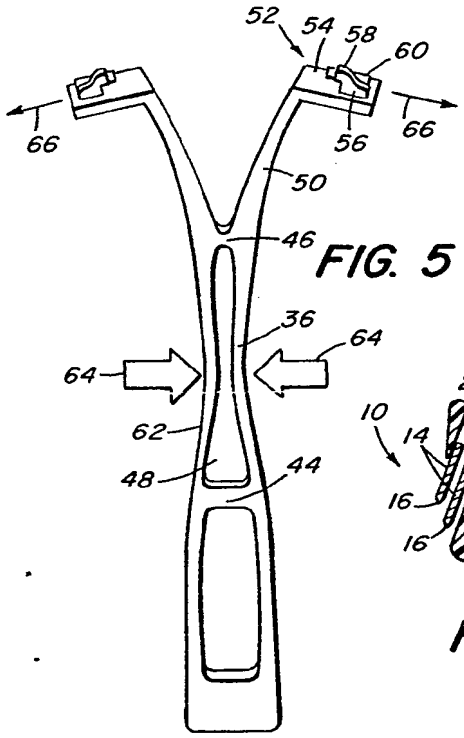

FIG. 5

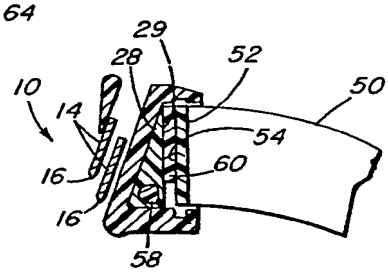

FIG. 3

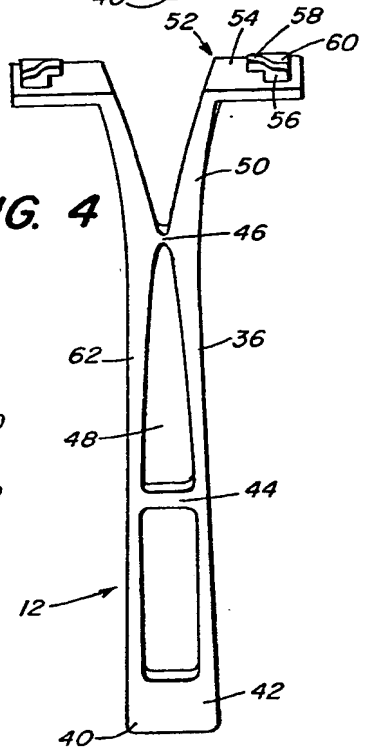

FIG. 4

SPECIFICATION

One-piece razor handle

This invention relates to wet shaving systems using blade cartridges and particularly to razor handles adapted for engaging blade cartridges.

Most wet shaving systems available today use blade cartridges rather than blades alone as the replaceable elements of the system. The cartridges allow precise location and orientation of the blade in its support structure, and are even more necessary for the use of dual blade systems, where two cutting edges are located in a cartridge in a precise relationship.

A number of techniques are used for attaching cartridges to razor handles. One method is to provide the razor handle with a pair of spreadable jaws for engaging projections in the rear of the blade cartridge. The jaws are spread, the cartridge is inserted between the jaws, and the jaws are closed to engage the cartridge projections. Typically some mechanism in the razor handle is needed to spread apart the jaws for insertion and/or removal of the cartridge from the handle.

It is an object of this invention to provide a razor handle that is simple and easy to use both to attach the handle to a blade cartridge and to disengage the handle from a used blade cartridge, and is also inexpensive to manufacture.

According to one aspect of the present invention we provide a one-piece razor handle for engaging a razor blade cartridge comprising:

a first portion defining a first elongate side wall of said handle;

a second portion defining a second elongate side wall of said handle in opposing, spaced-apart relation to said first side wall;

a third portion located between said first and second side walls at a location intermediate the length of said wall members, said third portion defining a fulcrum means about which said first and second walls are pivotably movable toward and away from each other,

each said side wall member including:

an upper portion extending upwardly from said fulcrum means and terminating in engaging means for engaging said cartridge between said engaging means, said upper portion being pivotable about said fulcrum means between an engaging position in which said engaging means engages said cartridge and a disengaging position in which said engaging means does not engage said cartridge, and

a lower portion extending downwardly from said fulcrum means,

said side wall lower portions being squeezable toward each other to pivot said upper portions from said engaging position to said disengaging position.

In preferred embodiments, the handle portion joins side walls, the handle is made from a resilient plastic, and the lower portions of the side walls, between the fulcrum and a spacer joining the lower portions below the fulcrum, are resiliently squeezable toward each other. Certain preferred embodiments also include a base joining the bottoms of the walls extending beyond the spcer to allow the handle to be gripped without disengaging the cartridge.

In one particular aspect of the invention the cartridge-engaging upper portions of the walls include surfaces for abutting the cartridge to prevent it from pivoting.

Reference is now made to the drawings, in which:

Figure 1 is a perspective view, from the front, of a razor blade cartridge and a razor handle constructed according to the invention;

Figure 2 is a perspective view, from the rear, of the cartridge and handle of Figure 1;

Figure 3 is a side elevational view, partially in section through one of the cartridge ribs, showing the handle of Figure 1 engaged with the blade cartridge;

Figure 4 is a front elevational view of the handle in its relaxed position; and

Figure 5 is a view like Figure 4 of the handle showing its configuration when the handle is squeezed.

Figures 1 and 2 show a typical razor blade cartridge 10 and a razor handle 12 constructed according to the invention. The cartridge 10 is of the type that has two parallel blades 14 mounted in the cartridge to present parallel, spaced-apart, cutting edges 16 on the front shaving surface 18 of the cartridge (see Figure 1). The rear surface 20 of the blade cartridge 10 (see Figure 2) includes portions for engagement with various razor handles, including a horizontal slot 22 made up of peripheral vertical walls 24 and upper and lower spaced-apart vertical ridges 26.

The cartridge rear surface 20 also includes a pair of horizontally spaced-apart ribs 28 projecting rearwardly that have rear surfaces 29. Each rib 28 has a horizontally extending aperture 30 facing outwardly for engagement by inwardly projecting jaws of a razor handle. The cartridge rear surface 20 also includes a central rearwardly projecting wall 32 with a camming surface 34 for engagement with a cartridge-pivoting element provided in some razor handles. Rounded surfaces 35 projecting from the cartridge rear surface 20 represent the tops of rivet pieces used in construction of the cartridge.

The razor handle 12 is a single piece open frame moulded from a plastic and having dimensions that provide some resiliency in the frame elements. The handle 12 includes two spaced-apart vertical side walls 36. At the bottom 40 of the handle 12, the walls 36 are joined by a portion of the handle forming a base 42 of the handle. About a third of the way up the handle 12, the walls 36 are joined by a portion of the handle forming a spacer 44. Further up the handle 12, the walls 36 are joined by a portion of the handle forming a neck 46. The space between the walls 36 bound by the spacer 44 and the neck 46 form a slot 48 into which the walls, which are resilient by the nature and dimensions of the plastic material used to form the handle, can move if they are squeezed toward each other.

Above the neck 46, the razor handle walls 36 diverge to form jaw-like upper wall portions 50 with

cartridge engaging end portions 52. The end portions 52 each comprise a surface 54 from which projects a base 56 for a horizontally inwardly extending finger 58 for engaging an aperture 30 of a cartridge rib 28. In the illustrated embodiment, each end portion 52 also includes a pad 60 for abutting the rear surface 29 of a cartridge rib 28 when the cartridge 10 and the handle 12 are engaged, to prevent pivotal movement of the cartridge about the fingers 58.

With the configuration of the handle elements described, the lower portions 62 of the handle walls 36, that is, the portions between the handle neck 46 and the spacer 44 adjacent the slot 48, may be squeezed together in the directions of the arrows 64, shown in Figure 5. When that is done, the upper wall portions 50 are urged outward, in the direction of the arrows 66, shown in Figure 5, the handle neck 46 acting like a fulcrum about which the walls 36 pivot. Upon release of the walls 36, the resilience of the walls 36 causes them to return to their original spaced apart configuration and causes the upper portions 50 to close.

The razor handle 12 is used to engage a blade cartridge 10 by pinching, or squeezing, the lower portions 62 of the handle walls 36 at a point between the handle neck 46 and the handle spacer 44, preferably midway between the two. This spreads the wall upper portions 50. A blade cartridge, such as the cartridge 10 illustrated in this description of a preferred embodiment, is placed so that the pair of cartridge apertures 30 is between the fingers 58 projecting from the end portions 52 of the wall upper portions 50. The handle walls 36 are then released, and the upper portions 50 return to their original position, gripping the cartridge ribs 28 by way of the fingers 58 in the aperture 30. The pads 60 at the surface 54 of the upper wall ends 52 are located to abut the rear surfaces 29 of the blade cartridge ribs 28. A portion of the surface 54 at the end 52 of the upper wall portions 50 also abuts a portion of the peripheral wall 24 of the cartridge 10 to help prevent pivotal movement of the cartridge. In this way the pads 60 and surface 54 prevent pivotal movement of the cartridge 10 about the fingers 58.

When it is desired to discard the cartridge 10 and substitute a fresh one, the handle 12 is squeezed again to spread the upper wall portions 50, and the cartridge 10 is easily replaced.

Thus a simply manufactured one-piece handle 12 provides all the mechanism necessary to engage and disengage any razor blade cartridge 10 that is adapted to be gripped between projecting fingers of spreadable jaws. The natural resilience of the usual plastic material used for manufacturing inexpensive razor handles is taken advantage of in the construction. The resilience allows the lower wall portions 62 of the handle to be squeezed together easily, to be restored to their original configuration quickly, and to hold their original position firmly.

It would be possible for other elements of the handle frame, such as the spacer 44, to provide the resilience necessary for operation of the handle 12. With a resilient spacer 44, and no base portion 42, the walls 36 could be rigid and still pivot about the neck 46 to cause the upper wall portions 50 to spread apart. Under those circumstances, namely, rigid walls, the bottoms of the walls 36 would move closer together, and so the base portion 42 would have to be eliminated or be very resilient. Such an arrangement would, however, create an opportunity for inadvertently releasing the cartridge 10 by gripping the razor handle strongly during shaving.

In the preferred embodiment, the resilience of the lower wall portions 62 (the portions of the side walls 36 between the neck 46 and spacer 44) is used to advantage. Typically the flexibility is not so great that simple grasping of the handle will cause release of the cartridge, nor so little that great pressure must be put on the handle walls to disengage the cartridge.

The location of the spacer 44 has an effect on the flexibility of the handle walls 36. If it is placed near the bottom of the handle, the flexibility of the walls will increase because of the lengthening of the slot 48 between the walls. If the spacer 44 is placed nearer the handle neck 46, the flexibility and the resilience of the walls 36 will decrease.

Locating the spacer 44 some distance up from the bottom 40 of the handle 12 creates a portion of the handle between the spacer and the bottom that may be gripped as strongly as desired without affecting the portions of the walls 36 above the spacer. The portion between the spacer and the bottom of the handle may even be filled in if desired, though leaving an open area conserves the amount of material used in the manufacture of the handle.

The pads 60 shown in the illustrated embodiment are optional. They allow the user of the handle 12 to lock a pivotable razor cartridge in a non-pivotable position, which some shavers prefer. The configuration of the ends 52 of the upper wall portions 50 may be varied to make them suitable for a variety of blade cartridges. Typically, the end portions would be formed to allow use of the handle with as many kinds of blade cartridges as is feasible.

The neck 46 is shown in the embodiment described as an integral element joining the handle walls 36. All that is necessary however, is that there be an element located between the walls about which they can pivot. It would be adequate, for example, if the walls had projecting elements that abut in the region of the neck. A split down the middle of the neck 46 would permit adquate operation of the handle, provided another portion of the handle did keep the handle walls joined.

CLAIMS

1. A one-piece razor handle for engaging a razor blade cartridge comprising:

a first portion defining a first elongate side wall of said handle,

a second portion defining a second elongate side wall of said handle in opposing, spaced-apart relation to said first side wall,

a third portion located between said first and second side walls at a location intermediate the length of said wall members, said third portion defining a fulcrum means about which said first and

second walls are pivotably movable toward and away from each other,

each said side wall member including:

an upper portion extending upwardly from said fulcrum means and terminating in engaging means for engaging said cartridge between said engaging means, said upper portion being pivotable about said fulcrum means between an engaging position in which said engaging means engages said cartridge and a disengaging position in which said engaging means does not engage said cartridge, and

a lower portion extending downwardly from said fulcrum means,

said side wall lower portions being squeezable toward each other to pivot said upper portions from said engaging position to said disengaging position.

2. A razor handle as claimed in Claim 1 including a fourth portion defining a spacer means extending between said side wall lower portions at a location remote from said third portion fulcrum means.

3. A razor handle as claimed in Claim 1 or 2 wherein said side wall lower portions are resilient.

4. A razor handle as claimed in Claim 2 or 3 wherein said side walls extend past said spacer means, including a fifth portion defining a base means extending between said side walls at a location remote from said fourth spacer means.

5. A razor handle as claimed in any of Claims 1 to 4, moulded from resilient plastic.

6. A razor handle as claimed in any of Claims 1 to 5, in which said upper portion means for engaging said cartridge includes a surface for abutting a surface of said blade cartridge when said upper portion means engaging means engages said cartridge, thereby preventing pivotal movement of said cartridge about said engaging means.

7. A one-piece open frame razor handle moulded from resilient plastic for engaging a razor blade cartridge comprising:

a first portion defining a first elongate side wall of said handle,

a second portion defining a second elongate side wall of said handle in opposing, spaced apart relation to said first wall,

a third portion extending between said first and second side walls at a location intermediate the length of said wall members, said third portion defining a fulcrum means about which said first and second walls are pivotably movable toward and away from each other,

a fourth portion defining a spacer means extending between said first and second side walls at a location below said third portion fulcrum means, and

a fifth portion defining a base means extending between said first and second side walls at a location below said fourth portion spacer means,

each said side wall including:

an upper portion extending upwardly from said fulcrum means and terminating in engaging means for engaging said cartridge between said engaging means, said upper portion being pivotable about said fulcrum means between an engaging position in which said engaging means engages said cartridge and a disengaging position in which said engaging means does not engage said cartridge, and

a lower portion extending from said third portion fulcrum means to said fourth portion spacer means,

said side wall lower portions being resiliently squeezable toward each other to pivot said upper portions from said engaging position to said disengaging position and releasable to return said upper portions to said engaging position.

8. A one-piece razor handle substantially as herein described with reference to and as shown in the drawings.

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